

First Response

Application Serial No.: 10/083,751

Filed: February 25, 2002

REMARKS

Claims 1 and 2 are revised and respectively presented as newly-submitted Claims 5 and 6. Claim 3 is amended for proper dependency. Claims 3-6 remain, with Claim 4 withdrawn from further consideration in this application and former Claim 2 (re-written as Claim 6) indicated as allowable in substance.

Reconsideration of this application is respectfully requested.

The Applicants confirm the provisional election, without traverse, to prosecute the invention of Group 1, Claims 1-3.

The Title and Abstract are amended in response to the Examiner's objections. The Applicants submit that the amended Title and Abstract comply with the requirements.

The objection to the specification as failing to provide proper antecedent basis is noted. Instead of changing the specification, the Applicants have amended Claims 1 and 2 to remove "land". Those amendments are submitted to overcome the rejection of Claim 1 and former dependent Claim 2 under 35 U.S.C. 112, second paragraph. The amendment with respect to former Claim 2 (here presented as Claim 6), is not intended to narrow the scope of original Claim 2.

The present invention provides a cylindrical commutator which is securely fixed to a mold resin. In order to secure the fixation of the commutator segments to the mold resin, it is necessary that relatively tall anchors are formed on the commutator segments and that the anchors are embedded in the mold resin. The present invention provides a cylindrical commutator having anchors whose height is large enough to be securely fixed to a mold resin.

Claim 1 was rejected as anticipated by *Kanno* (U.S. - 5,204,574). The Applicants respectfully traverse this rejection as possibly applied to Claim 5.

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According to Claim 5, each of the commutator segments is provided with a groove formed on an inner surface thereof and one or more anchors extending over substantially the total length of the segment. The anchors are projected from the inner surface of the commutator segments. Because the anchors project from that inner surface, the anchors can have a radial height long enough to secure the fixation of the commutator segments to the mold resin.

On the contrary, *Kanno* discloses anchors having the same height as ridge portions as shown in Fig. 8 thereof and fails to disclose anchors projected from inner surfaces of commutator segments. *Kanno* further discloses a production method of the anchors in the specification at column 6, line 44 through column 7, line 17. According to that description, the ridge portions formed by press working are partly cut and raised to form the anchors. Thereby, the height of the anchors is necessarily the same as the height of the ridge portions and the anchors are not projected from the inner surface of the commutator segments.

Stated otherwise, and as most clearly seen in Figs. 7 and 8 of *Kanno*, the internal claws (20A and 20B) are formed on opposite sides of a structure defined by circumferential protrusions (22A and 22B) at opposite ends of the commutator segments and defining rectangular shallow recesses 21. Please see column 5, lines 58-63 of *Kanno*. The claws 20A and 20B originate and extend inwardly not from the inner surface of the cylindrical surface from a point (undesigned but visible in Fig. 8) that itself is radially inwardly from the inner surface of the cylindrical segment. *Kanno* thus fails to anticipate the structural requirement that anchors are projected from inner surfaces of the commutator segments.

According to Claim 3, each of the commutator segments is further provided with a second anchor which is divided from each hook and bent inward. The hook is

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employed to form the second anchor so that the second anchor can be formed relatively long to ensure the fixation of the commutator segments to the mold resin.

Claim 3 was rejected as obvious over *Kanno* in view of *Kageyama* (U.S. - 6,369,484). The Applicants traverse that rejection. *Kageyama* discloses anchors cut-and-raised from inner surfaces of commutator segments but fails to disclose second anchors divided from hooks and bent inward. The anchors disclosed by *Kageyama* occupy a certain area of the inner surfaces of the commutator segments, so that the anchors disclosed by *Kanno* can not be formed over substantially the total length of the commutator segments. It would have been difficult to combine *Kageyama* with *Kanno*, and therefore it would not have been easy or obvious for those skilled in the art to produce the combination of Claim 3 on the basis of these disclosures. There is needed a motivation, which is not disclosed in either *Kageyama* or *Kanno*, to modify the anchors of *Kageyama* so as to be the second anchors of Claim 3.

The foregoing is submitted as a complete response to the Office Action identified above. The Applicants submit that Claims 3 and 5 are patentable over the art of record, and solicit a notice of allowance to those claims as well as to Claim 6 previously allowed in substance.

Respectfully submitted,


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